

WORKSHOP II

SUMMARY OF COMMUNITY TECHNOLOGY NEEDS

Clifford R. Bragdon, Professor, Georgia Institute of Technology: The Community Planning Roundtable, which had 22 participants, came up with an overall statement of the problem and then defined critical technology needs for identifying and implementing solutions. Although noise is a recognized problem in terms of airport planning, the magnitude and extent of this problem are somewhat unclear. Noise impacts the quality of life around the airport and the economic welfare of the community as a totality. The noise problem has had an adverse effect on the development and expansion of existing airports, and has frequently resulted in operational restrictions. There were some fairly strong opinions in the group that noise may be the single most significant factor in airport planning.

The noise problem is not unique to the large hub airports; even general aviation airports are feeling the effects of an increasing public awareness of noise. Land use conversion around airports may actually heighten this problem in the future, even though technology may be reducing the actual noise level. The recognition of noise as an environmental problem, along with the conversion of land around airports, which may increase the residential settings and certainly the potential population densities, may at least keep the problem constant and may even elevate it in terms of increased awareness.

Some important information and technology needs were identified which could contribute to the solution of the overall problem. Technology was defined here to include the application of the social sciences as well as engineering to the task of problem solving. These needs are discussed here in the order in which the group felt they should be addressed.

- (1) There is a great concern that the impact model be a method of working and assisting with problem solving. The criteria for this impact model are essential in developing an accurate and effective tool.
- (2) Determine the most optimized way of using a ground track relative to aircraft operations and land use management.
- (3) Approach the parts of profile optimization (takeoff and landing) again in terms of optimizing land density operations or ground conditions relative to approaching the problem of increasing our traffic loads.
- (4) Source noise reduction should be viewed in an aggregate sense. From a noise standpoint, the data should be integrated into an overall assessment of the aircraft as a source.
- (5) Real-time simulation of noise impact is needed. In other words, the information that is aggregated from various techniques must actually be used in making decisions. We may have solutions or at least alternatives, but this information must be delivered to the decision makers in a community setting and they must be responsive to it.

- (6) Economic incentives must be defined to enhance the adoption of noise abatement as a method of improving conditions in the airport situation.
- (7) Future technology needs must be defined relative to the targets and goals of a plan of attack.
- (8) Optimization studies are needed on a national level in the areas of airspace management and energy.
- (9) Projections of community characteristics are needed to insure that factors that may be unknown now will be incorporated in future planning efforts. At present a lot of our projections are based on existing census information, but dynamic changes in our communities may change the impacts around airports.

Other technology needs were grouped into several broad areas:

- (1) Group dynamics is an important tool and must be used effectively.
- (2) An information clearinghouse could be developed for solution development and transfer of information.
- (3) A cumulative noise descriptor is needed to supply a more accurate determination of the existing problem.
- (4) The various airport communities and noise abatement commissions should be looked at with a view toward improving their effectiveness.
- (5) Impact metrics deals with a variety of factors that we need to identify, including the extent to which we can measure the impact of a variety of inputs.
- (6) Aircraft activity monitoring should be carried out so that the data that are essential can be developed further if necessary.
- (7) Non-noise factors such as safety must be incorporated into any model of the program.
- (8) Expansion of the operating envelope must consider both noise and safety to insure that noise abatement is not maximized at the expense of safety.
- (9) Energy is a major issue in soundproofing, particularly since soundproofing of external surfaces is now becoming technologically feasible.
- (10) Energy and acoustical trade-offs must be identified to determine where they can work to improve conditions in an airport setting.

- (11) Microwave Landing System (MLS) deployment should be considered in terms of its potential contributions to noise abatement.

All of these technology needs and issues are critical, but if we can't transfer this information to user groups, then we haven't succeeded in using the information to solve the problem.

The group also expressed the concern that NASA and other organizations have limited resources to be applied to a given solution. Careful consideration must be given to pursuing a program that will yield the maximum desired effect relative to the problem that has been identified. Jet aircraft, as a category, should be the focus of research to develop solutions to the noise problems around airports. In conclusion, the group emphasized the need to continue this type of communication and discussion of this problem.